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10/647,271	08/26/2003	Norihiro Kawatoko	00862.023190.	2628

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EXAMINER
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SINGH, SATWANT K

ART UNIT	PAPER NUMBER
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2625

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11/23/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/647,271

Applicant(s)

KAWATOKO ET AL.

Examiner

Satwant K. Singh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This office action is in response to the amendment filed on 13 September 2007.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 13-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 13-16 while defining a computer program recorded on a storage medium does not define a "computer-readable medium" and is thus non-statutory for that reason. The examiner suggests amending the claims to embody the computer program on a "computer-readable medium" in order to make the claim statutory.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Nou (US 6,932,452).

7. Regarding Claim 1, Nou discloses a an image printing method for completing a print process of each pixel by making a plurality of main scans of a print head (Figs. 4 and 5), which prints dots on a print medium, with respect to the print medium, comprising the steps of: assigning, to a pixel of interest, a pattern used to determine which of the plurality of main scans is used to print one or more dots having a single size to be printed for the pixel of interest (Fig. 9) (number of the five dots of the same size in one pixel and the positions of the dots can be controlled as desired) (col. 6, lines 57-63); and printing the one or more dots on the pixel of interest in the main scan determined by the assigned pattern (printing is performed and suitable tone representation is achieved) (col. 6, lines 57-63), wherein the assigning step includes a step of selecting one pattern from a plurality of patterns corresponding to each of density levels on the basis of a density level of the pixel of interest and assigning the selected pattern to the pixel of interest (bit data is selected according to the tone level of the image data) (col. 6, lines 64-67, col. 7, lines 1-10).

8. Regarding Claim 2, Nou discloses an image printing method for completing a print process of each pixel by making a plurality of scans of a print head (Figs. 4 and 5), which prints dots on a print medium, with respect to the print médium, comprising the steps of: assigning, to each pixel, a pattern which specifies the number of one or more dots having a single size corresponding to a density level of the pixel and scans used to print the one or more dots having a single size interest (Fig. 9) (number of the five dots

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of the same size in one pixel and the positions of the dots can be controlled as desired) (col. 6, lines 57-63).

9. Regarding Claim 3, Nou discloses an image printing method for completing a print process of each pixel by making a plurality of scans of a print head (Figs. 4 and 5), which prints dots on a print medium, with respect to the print medium, comprising the steps of: assigning a pattern, used to determine which of the plurality of scans is used to print one or more dots having a single size to be printed for each pixel, to that pixel (Fig. 9) (number of the five dots of the same size in one pixel and the positions of the dots can be controlled as desired) (col. 6, lines 57-63); generating a print data corresponding to dots to be printed in each scan of the print head on the basis of the pattern assigned to the pixel; and printing dots on each pixel on the basis of the generated print data (bit data is selected according to the tone level of the image data) (col. 6, lines 64-67, col. 7, lines 1-10).

10. Regarding Claim 4, Nou discloses a method, wherein a plurality of patterns are prepared in correspondence with each of the density levels of the pixel, and in the selecting step, one of the plurality of patterns corresponding to a density level of a pixel of interest is selected randomly or in a predetermined order (bit data is selected according to the tone level of the image data) (col. 6, lines 64-67, col. 7, lines 1-10).

11. Regarding Claim 5, Nou discloses a method, wherein the plurality of main scans include both forward and backward scans of the print head (Figs. 4 and 5), and a pattern corresponding to a density level of a pixel which requires to print two or more dots is defined so that dots to be printed are distributed to both the forward and

backward scans (drive voltage applied in the opposite direction, ink is emitted in a similar manner) (col. 4, lines 59-67, col. 5, lines 1-7).

12. Regarding Claim 6, Nou discloses a method, wherein the plurality of scans include both forward and backward scans of the print head (Figs. 4 and 5), and the pattern is defined so that dots to be printed are distributed to one of the forward and backward scans (drive voltage applied in the opposite direction, ink is emitted in a similar manner) (col. 4, lines 59-67, col. 5, lines 1-7).

13. Regarding Claim 7, Nou discloses a method, wherein the plurality of patterns are assigned so that densities printed in forward scans become equal to densities printed in backward scans (drive voltage applied in the opposite direction, ink is emitted in a similar manner) (col. 4, lines 59-67, col. 5, lines 1-7).

14. Regarding Claim 8, Nou discloses a print data generating method that generates a print data for completing a print process of each pixel by making a plurality of scans of a print head (Figs. 4 and 5), which prints dots on a print medium, with respect to the print medium, comprising the steps of: assigning a pattern, used to determine which of the plurality of main scans is used to print one or more dots having a single size to be printed for each pixel, to that pixel (Fig. 9) (number of the five dots of the same size in one pixel and the positions of the dots can be controlled as desired) (col. 6, lines 57-63); and generating the print data corresponding to dots to be printed in each scan of the print head on the basis of the pattern assigned to the each pixel (bit data is selected according to the tone level of the image data) (col. 6, lines 64-67, col. 7, lines 1-10).

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15. Regarding Claim 9, Nou discloses a print data generating method that generates a print data for completing a print process of each pixel by making a plurality of main scans of a print head (Figs. 4 and 5), which prints dots on a print medium, with respect to the print medium, comprising the steps of: assigning, to a pixel of interest, a pattern used to determine which of the plurality of main scans is used to print one or more dots having a single size to be printed for the pixel of interest (Fig. 9) (number of the five dots of the same size in one pixel and the positions of the dots can be controlled as desired) (col. 6, lines 57-63); and generating the print data corresponding to the dots to be printed in each scan of the print head on the basis of the pattern assigned to the pixel of interest (bit data is selected according to the tone level of the image data) (col. 6, lines 64-67, col. 7, lines 1-10), wherein the assigning step includes a step of selecting one pattern from a plurality of patterns corresponding to each of density levels in correspondence with a density level of the pixel of interest, and assigning the selected pattern to the pixel of interest (Fig. 12) (decoder references smoothing pattern table) (col. 7, lines 12-24).

16. Regarding Claim 10, Nou discloses a print data generating method that generates a print data for completing a print process of each pixel by making a plurality of scans of a print head (Figs. 4 and 5), which prints dots on a print medium, with respect to the print medium, comprising the steps of: assigning, to each pixel, a pattern which specifies the number of one or more dots having a single size corresponding to a density level of the pixel and scans used to print the one or more dots having a single size (Fig. 9) (number of the five dots of the same size in one pixel and the positions of

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the dots can be controlled as desired) (col. 6, lines 57-63); and generating the print data corresponding to the dots to be printed in each scan of the print head on the basis of the pattern assigned to the each pixel (bit data is selected according to the tone level of the image data) (col. 6, lines 64-67, col. 7, lines 1-10).

17. Regarding Claim 11, Nou discloses a printer for forming one pixel by one or a plurality of dots having a single size printed by a predetermined number of head scans comprising: a memory for storing one or a plurality of patterns, each of which indicates an order of scans that print dots having a single size for respective pixel values (decoder of the controller stores bit data) (col. 6, lines 64-67, col. 6, lines 1-10); a generator for selecting one pattern from the one or plurality of patterns stored in said memory in accordance with a value of a pixel of interest, and generating binary data to be printed for respective scans (bit data is selected according to the tone level of the image) (col. 6, lines 64-67, col. 6, lines 1-10); and print means for controlling the head to print dots for respective scans of the head in accordance with the binary data (inkjet head) (col. 5, lines 50-58).

18. Regarding Claim 12, Nou discloses an image recording apparatus for completing a print process of each pixel by making a plurality of main scans of a print head, which prints dots on a print medium, with respect to the print medium, comprising: a memory for storing a plurality of patterns, each of which specifies the number of one or more dots having a single size corresponding to a density level of a pixel and scans used to print the one or more dots having a single size (decoder of the controller stores bit data) (col. 6, lines 64-67, col. 6, lines 1-10); assignment means for selecting a pattern



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corresponding to a density level of a pixel of interest from the plurality of patterns stored in said memory and assigning the selected pattern to the pixel of interest; and printing control means for printing dots on the pixel of interest by the scan specified by the assigned pattern (bit data is selected according to the tone level of the image) (col. 6, lines 64-67, col. 6, lines 1-10).

19. Regarding Claim 13, Nou discloses a computer program product recorded on a storage medium for making a computer generate data to be used in a printer for completing a print process of each pixel by making a plurality of scans of a print head, which prints dots on a print medium, with respect to the print medium, comprising: a code for assigning a pattern (decoder of the controller stores bit data) (col. 6, lines 64-67, col. 6, lines 1-10), used to determine which of the plurality of scans is used to print one or more dots having a single size to be printed for each pixel, to that pixel (Fig. 9) (number of the five dots of the same size in one pixel and the positions of the dots can be controlled as desired) (col. 6, lines 57-63); and a code for generating the data corresponding to the dots to be printed for respective scans of the print head on the basis of the assigned pattern (inkjet head) (col. 5, lines 50-58).

20. Regarding Claim 14, Nou discloses a program product wherein the code for assigning includes selecting one of patterns corresponding to a density level of a pixel of interest and assigning the selected one pattern to the pixel of interest (bit data is selected according to the tone level of the image data) (col. 6, lines 64-67, col. 7, lines 1-10).

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21. Regarding Claim 15, Nou discloses a program product wherein a plurality of patterns are prepared in correspondence with each of the density levels of the pixel, and in the selecting one of the plurality of patterns corresponding to a density level of a pixel of interest is selected randomly or in a predetermined order (bit data is selected according to the tone level of the image) (col. 6, lines 64-67, col. 6, lines 1-10).

22. Regarding Claim 16, Nou discloses a computer program product recorded on a storage medium for making a computer generate data to be used in a printer for completing a print process of each pixel by making a plurality of scans of a print head, which prints dots on a print medium (Figs. 4 and 5), with respect to the print medium, comprising: a code for assigning, to each pixel, a pattern which specifies the number of one or more dots having a single size corresponding to a density level of the pixel and scans used to print the one or more dots having a single size (Fig. 9) (number of the five dots of the same size in one pixel and the positions of the dots can be controlled as desired) (col. 6, lines 57-63); and a code for generating the data corresponding to the dots to be printed for respective scans of the print head on the basis of the assigned pattern (bit data is selected according to the tone level of the image data) (col. 6, lines 64-67, col. 7, lines 1-10).

### ***Conclusion***

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satwant K. Singh whose telephone number is (571) 272-7468. The examiner can normally be reached on Monday thru Friday 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (571) 272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*Satwant Singh*  
sks

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Examiner  
Art Unit 2625

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